Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Redevelopment of Spectrum To Encourage Innovation In The Use of New Telecommunications Technologies	)	ET Docket No. 92-9

COMMENTS
OF
EDISON ELECTRIC INSTITUTE

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SUMMARY

Edison Electric Institute ("EEI"), the association of the nation's investor-owned electric utilities serving 75 percent of all electric customers in the country, is strongly opposed to the Commission's Notice of Proposed Rulemaking ("NPRM") in the instant proceeding.

EEI believes that the Commission's proposal evidences a lack of understanding of the substantial impact the proposed reallocation of existing 2 GHz private microwave assignments would have. First, the proposal could impact the nation's electric utilities and their ability to provide the highest quality, most reliable and lowest cost electricity. Second, the proposal could impact the general public which relies on efficient and economical electricity. The complexity and uniqueness of the electric industry requires the proven reliability of 2 GHz facilities. The reallocation, as proposed by the Commission, could interfere with

the integrity and reliability of the nation's electric generation, transmission and distribution systems, and could cause higher rates for electricity, because no other existing facilities can provide the same reliability and economies the current allocation provides.

EEI believes that existing 2 GHz proven telecommunication services, providing vital public service, and operating efficiently and effectively should not be summarily displaced for what may be a futile effort to accommodate speculative new services and technologies. At the very least, the Commission must give the same consideration to the reliability of the nation's electric network as it does to the nation's telephone network.

Aside from failing to consider the impact of its proposal on the provision of reliable and efficient electricity by electric utilities, the Commission failed to carefully investigate the possible availability of government spectrum to accommodate the newly emerging technologies. Similarly, the Commission failed to consider whether the newly proposed technologies can co-exist with current allocations. In addition, the Commission failed to consider a broad range of technical problems associated with its proposal, from problems associated with changing frequencies to practical alternatives available.

Assuming arguendo that the Commission goes forward with its proposal, all electric utilities, not only those government-owned electric utilities, should receive an exemption from the reallocation and should be permitted to continue indefinitely uninterrupted

operations because of the importance of the provision of reliable and efficient electricity. Finally, if the proposal does become effective, newly emerging technology licensees must be required to ensure reimbursement to every electric utility at any time that it is forced to migrate from its current 2 GHz allocation. Otherwise, the costs to migrate to an alternative service may be borne by the ratepayer.

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COMMENTS
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EDISON ELECTRIC INSTITUTE

Edison Electric Institute ("EEI"), by its attorneys, pursuant to the provisions of Section 1.415 of the Commission's Rules, hereby submits its Comments in response to the Notice of Proposed Rule Making ("NPRM") released in the above-captioned proceeding on February 7, 1992.

I. INTRODUCTION

1. EEI is the association of the nation's investor-owned electric utilities. EEI's member companies serve 98 percent of all customers served by the investor-owned segment of the industry and 75 percent of all electric customers in the country. In addition, EEI's members generate 78 percent of all electricity in the nation.

2. By its NPRM, the Commission is proposing, among other things, to take essential frequency allocations from EEI's members in the 1.85-1.99, 2.11-2.15, and 2.16-2.20 GHz frequency bands and reassign these frequencies for as yet undefined and unidentified "emerging telecommunications technologies." EEI members use telecommunications facilities licensed in these Private Operational-Fixed Microwave Radio Service frequency bands extensively as an

integral part of their operations related to the generation, transmission, and distribution of electricity.

3. These comments are being provided to the Commission with the intent of demonstrating the complexity and uniqueness of the electric industry and its requirement for the proven reliability of 2 Ghz private operational-fixed microwave facilities necessary to assure the provision of a high quality and reliable supply of electricity to the nation. EEI urges that the integrity and reliability of the nation's electric generation, transmission and distribution systems be preserved and that, in these difficult economic times, there are no unwarranted additional costs to electric systems or ratepayers as a result of the Commission's actions in this proceeding. Consequently, these Comments urge the Commission to conduct an in depth examination of the potential impact of its proposal and to seriously consider alternatives to displacing electric utility licensees which are now efficiently operating in the 2 Ghz frequency band.

4. If adopted, the Commission's proposal would require essential electric utility telecommunications facilities to be: (a) relocated to another part of the frequency spectrum -- with no assurances that there will exist in the new spectrum comparable reliability, frequency availability, suitability or licensing capabilities; or, (b) replaced with alternative facilities such as fiber optic facilities or satellite facilities which do not provide the requisite reliability, and which may be more expensive to

implement, operate and maintain.[1/] The Commission must fully understand the potential impact of its proposal on electric utility licensees, and on the general public, from an operational and economic perspective, before going forward in this proceeding. Implementation of the NPRM risks interference with the reliable provision of electricity in the United States and may cause higher costs for electric utilities and their ratepayers.

5. EEI is strongly opposed to the NPRM. Proven services and technologies which are vital to the public, and which are operating efficiently and effectively, should not be summarily displaced for what may be a futile effort to accommodate speculative new services and technologies for which there is no demand, no proven market and no equipment. This is especially true in the instant case where it is not clear that the FCC has exercised its best efforts to determine whether federal government spectrum is available to accommodate emerging telecommunications technologies, and whether suitable spectrum (both from technical and regulatory perspectives) and other alternatives for incumbent licensees exist. The NPRM manifests the fears recently expressed by Commissioner Duggan in his Separate Statement concerning "Rules to Provide for Notification By Common Carriers of Service Disruptions." Commissioner Duggan said that without sufficient knowledge, the Commission

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[1/] See infra discussion at Section VI, p.18.

"could be stampeded into action that might be reckless and ill-advised."[2/]

6. No basis exists in the NPRM for the Commission to abandon current allocations thereby forcing electric utilities (which are utilizing the frequency spectrum to provide efficient, economic and reliable service) from this spectrum. What will the Commission put in place of these incumbent licensees? What are these new, not yet identified services and how will the public benefit from them? Where is the demonstrated demand for these services and, with the plethora of services currently available such as cellular, paging, SMRs, mobile radio, and wireline facilities, why must these newly emerging technologies be implemented at the expense of currently operating efficient services?[3/] There are no answers to these questions because the Commission's contemplated action is premature and ill-advised, and will remain so until the Commission explores all pertinent questions concerning the potential impact of its

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[2/] Separate Statement of Commissioner Ervin S. Duggan in re Report and Order, Rules to Provide For Notification by Common Carriers of Service Disruptions, Docket No. 91-273, FCC 92-58, released February 27, 1992.

[3/] Electric Utilities effectively and efficiently utilize 2 Ghz allocations to assist in providing economical and reliable electricity. These utilities will, under the Commission's proposal, be forced to look to alternatives so that new, yet undefined services, for which there is no proven demand, can occupy this frequency spectrum. Accordingly, it should be questioned whether such a proposal complies with Section 303(g) of the Communications Act of 1934, as amended, which provides, inter alia, that the Commission should, as public convenience, interest or necessity requires, ... generally encourage the larger and more effective use of radio in the public interest ...." 47 U.S.C. § 303(g).

proposal and the new services the FCC plans to authorize in this frequency band.

II. THE COMMISSION MUST CAREFULLY EXAMINE THE POTENTIAL IMPACT OF ITS PROPOSAL ON ELECTRIC SYSTEM NETWORK RELIABILITY AND COST

A. The Provision of Reliable and Efficient Electricity

7. A high quality, reliable and efficient supply of electricity is critical to our nation. That is why electric utilities are under a legal obligation to serve in their franchised service territories and ensure adequate supplies of electricity for existing and future customers, and why prices for electric power are highly regulated at federal, state and local levels.

8. The use of 2 Ghz private operational-fixed microwave facilities, the very ones the Commission is proposing to take from electric utility licensees, are an essential part of operations to protect, control, manage, coordinate and operate the electric network in ways that are efficient and error free.[4/] These communications facilities have a direct impact on the reliability of electric services and upon public health and safety.[5/] Accordingly, the Commission must make some determination as to whether its NPRM, if implemented, would have any adverse impact on the integrity or reliability of the nation's electric systems and

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[4/] For a detailed explanation of the use of 2 GHz facilities, see infra discussion at Section II.b., "Operation of the Electric Systems," p.7.

[5/] Letter Comments of Atlantic Electric, dated December 3, 1991, received December 5, 1991 by the FCC, En Banc presentation in Docket No. 90-314.

network, as well as whether the implementation of the NPRM would cause an increase in electric system costs and ultimately result in higher rates for electric service.

9. The provision of efficient, high quality and uninterrupted electric power to the American public is dependent upon the availability of proven communications facilities and media. The Commission itself has recognized the importance of ultrareliable private operational-fixed microwave communications links to electric utility licensees. The Commission found that power companies "tend to demand a [communications] reliability factor of 99.995 percent, which is higher than the level of reliability for most common carrier services."[6/]

10. A major consideration in maintaining the 99.995 percent communications reliability factor is having the electric utility control and manage the requisite communications facilities; it is only by management and control of these systems that all necessary monitoring, control, maintenance and repair can be performed immediately with personnel dedicated to such tasks. Absent this level of management and control, it is impossible to maintain such

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6/ First Report and Order, Amendment of Part 94 of the Commission's Rules to Authorize Private Carrier Systems In The Private Operational Fixed Microwave Radio Service, P.R. Docket No. 83-426, Released April 1, 1985, 57 RR2d 1486, 1501 and n.35.

A 99.995 percent reliability factor equates to only 26.28 minutes of anticipated outage in a one year period. Cornbelt Power, in its En Banc presentation made pursuant to the Commission's October 25, 1991 Policy Statement on PCS indicated that it measured the reliability of its 2 Ghz system at 99.9993 percent. Letter Comments of Cornbelt Power Cooperative, dated December 16, 1991, En Banc Presentation in Docket No. 90-314. This reliability factor equates to only 3.68 minutes of anticipated outage in a one year period.

a high communications reliability factor which is essential for assuring a highly reliable supply of electricity. Furthermore, the provision of an electric utility's own 2 GHz microwave communications facilities and services is often less expensive than various alternatives currently available. Any savings in cost will ultimately be passed on to the ratepayer.

B. Operation of the Electric System

11. Today's electric system is characterized by electricity produced by many generators and then sent over electric transmission lines to utility customers via a distribution network. The unique physical properties of electricity cause it to follow multiple paths, moving at the speed of light, over paths with the least resistance within a network. Therefore, electricity cannot be directed to flow from point to point over specific lines.

12. Because customer demand is changing continuously throughout the day, generation must be adjusted instantly to meet this demand. Unlike other energy forms, electricity generally cannot be stored; it must be produced at the instant it is required. The entire electric power system is designed to keep supply and demand in constant balance and electricity supplied at a constant frequency.[7/] To maintain this balance, to exchange data

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[7/] Voltage, current, frequency and power parameters must be managed and controlled to assure that they are within certain specified parameters. Any significant deviation from these parameters could cause instability in the system, resulting in system failures, potentially severe damage to utility and customer equipment and widespread blackouts.

and monitor generation, transmission and distribution systems on a real time basis, and to preserve the system integrity, electric utilities throughout the country must be in close, continuous coordination with each other. Electric utilities are called upon to properly adjust the level of supply to match constantly changing demand as well as to respond to problems anywhere within its own system or the interconnected grids.[8/] The 2 GHz microwave facilities currently authorized by the Commission are essential to electric utilities in effectively and efficiently performing all of these critical functions.

13. As demonstrated above, the 2 GHz private operational-fixed microwave facilities are used by electric utilities for real time control of all aspects of electrical system and network

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[8/] Cooperation and coordination among electric utilities is required both to maintain a high level of utility system reliability and to bring economic savings to the individual electric utility and its customers. Electric utilities are continually buying and selling power from each other, resulting in economic benefits to ratepayers. All electric utilities in the United States are a part of one of three interconnected transmission grids. This interconnection improves reliability by providing a larger base of generating reserves to cover system contingencies such as unexpected plant outages. Interconnection has been estimated to save the American economy over $15 billion each year. (Casszn, John A., "Free Market Electricity: Potential Impacts on Utility Pooling and Coordination." Public Utilities Fortnightly, Feb. 18, 1988.) While interconnection of electric utility systems provides important benefits, it also greatly increases the complexity of the utility system; therefore, the need for coordination and cooperation among utilities is critical to maintaining the reliable and efficient provision of electricity. An integral part of this coordination of electric utilities is accomplished by currently allocated 2 GHz microwave links.

operations.[9/] These facilities are also used routinely to provide communications capabilities for: "life line" services to hospitals, police and fire departments; emergency preparedness and disaster recovery; restoration of service after outages; trouble reporting; and, interconnection with, and control of, mobile radio facilities for dispatching personnel for emergencies, repairs and maintenance.[10/]

14. Because of the critical functions served by the 2 GHz facilities currently licensed to electric utilities, any disruption of these facilities could have a substantial negative impact on the integrity of individual electric systems and the entire electric network. This could result in the less reliable and more costly provision of electricity. Unfortunately, the Commission has

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[9/] For example, 2 GHz facilities are used for protective relaying, the ability to remotely detect and isolate, within milliseconds, the electric facilities experiencing fault conditions; transmission of critical telemetered data between and among a utility's operations control centers, substations, generating plants, etc. and other utilities; long and medium haul remote data/voice communications; control of mobile radio base stations and other radio communications used for demand-side management ("DSM") and load control; environmental monitoring; and, nuclear power plant communications and coordination.

[10/] An excellent example of the emergency use of 2 GHz facilities occurred in the January, 1992 blackout in part of Washington, D.C. In that instance, power system monitoring equipment using 2 GHz facilities terminated power to the affected 230 kV transmission lines. Correct operation of the transfer trip relaying using 2 GHz microwave transmission allowed the fault to clear in 5.5 cycles or 0.09 seconds. If the fault were cleared by mechanical overcurrent relays, it would have taken 45 cycles or 0.75 seconds. (This is a significant difference when considering that electricity travels at the speed of light.) This instantaneous response helped to avoid excessive damage to the system, and prevented the problem from becoming larger and involving a longer outage.

neglected to consider these implications in its NPRM and in the initial regulatory flexibility analysis required by the Regulatory Flexibility Act[11/].

C. Reliability of The Electric Network Should Be Accorded The Same Consideration As Reliability Of The Telephone Network.

15. Just as the Commission has demonstrated its concern with the integrity and reliability of the public switched telephone network, it must similarly accord like treatment to the nation's electric network. After several telephone network disruptions occurred in 1991, and the severe ramifications of those disruptions became apparent, the Commission established a Network Reliability Council.[12/] This Council is a federal advisory committee that will provide, inter alia, expert technical advice to the FCC and to the telecommunications industry on issues related to telephone network reliability. Chairman Sikes has stated that the Commission is "committed to ensuring that the American public continues to get the highest quality, most reliable, and lowest cost telephone service possible.[13/]

[11/] 5 U.S.C. § 601 et seq. It should also be noted that the Commission failed to consider significant alternatives for displaced licensees which the Commission is required by the Regulatory Flexibility Act to do.

[12/] FCC News Release, "Sikes Names Industrialist Paul Henson Chairman Of Network Reliability Council," released December 13, 1992.

[13/] Statement of Alfred C. Sikes, Chairman, Federal Communications Commission before the Subcommittee on Telecommunications and Finance Committee on Energy and Commerce House of Representa-
(continued...)

16. Without doubt, the nation's electric network is not only vital to a reliable telecommunications network, but it also provides many additional functions related to the safety of life and property. The electric network is no less important to the American public than the phone network. In fact, without the reliable provision of electricity, there can be no reliable telecommunications network. Surely, the Commission is required to carefully analyze the implications of its NPRM on the electric network and do so in a manner at least as thorough as that which it has undertaken to assure a reliable telecommunications network.

III. THE COMMISSION MUST EXAMINE THE AVAILABILITY OF GOVERNMENT FREQUENCY SPECTRUM FOR PROPOSED NEW SERVICES

17. In connection with its rule making proposal, it does not appear that the Commission has completed an assessment of whether the government spectrum in the 2 GHz range may be available to accommodate new telecommunications technologies.[14/] If such spectrum is available, it would not necessitate the relocation of incumbent 2 GHz licensees. Before concluding that the only available spectrum to accommodate the newly emerging technologies should come from existing 2 GHz private, operational-fixed allocations, the Commission must initiate serious negotiations with

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[13/](...continued)
tives on Federal Communications Commission Telephone Network Reliability Initiatives, April 7, 1992.

[14/] In its NPRM, the Commission acknowledged that it did not consider federal government spectrum. See NPRM § 11, n.11.

the National Telecommunications and Information Administration ("NTIA") to determine if any government spectrum is available. These negotiations are essential in light of the recently released draft report of NTIA which appears to show that 230 MHz of federal government spectrum is vastly under utilized.[15/] Any conclusions that incumbent licensees must vacate the 2 GHz spectrum because there is no other spectrum available is premature and will remain premature until the Commission exhausts any possibility of obtaining government spectrum for this purpose.

18. Reports on the progress of negotiations with NTIA should be made available to the public so that it can be informed of the reasons for actions taken; affected members of the public should be part of the FCC's negotiating team. Only in this manner will the Commission be able to make a determination as to the availability of government spectrum for new telecommunications technologies.

IV. THE COMMISSION HAS FAILED TO CONSIDER PRACTICAL FEASIBILITY PROBLEMS WITH VARIOUS ALTERNATIVES

19. The Commission must recognize that there is a large difference between what is technically possible, and what is practically feasible. A myriad of factors must be considered, on a path by path basis, to determine if a particular alternative is practically feasible to implement. A solution that works for one

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15/ See "Federal Spectrum Usage of the 1710, 1850 GHz and 2200-2290 GHz Bands," E. Cerezo, Ed., NTIA TR 92-285 (March, 1992). See, also, "Petition to Suspend Proceeding" filed in the instant proceeding by the Association of American Railroads, the Large Public Power Council and the American Petroleum Institute.

path may be totally inappropriate or impossible for another. However, insofar as electric utilities are concerned, once a move is made away from private microwave facilities, communications become less reliable.

20. As one alternative to existing 2 GHz facilities, the Commission suggests the migration to another frequency band.[16/] However, it appears that existing private microwave allocations are insufficient to accommodate all of the 2 GHz licensees that would be displaced by the Commission's proposal. The Common Carrier spectrum suggested by the Commission would not be suitable, under current regulatory provisions, to accommodate the requirements of electric utility licensees.[17/] The Commission has not made a determination that there is adequate spectrum available with appropriate regulations in place to accommodate displaced 2 GHz licensees. Finally, there has been no demonstration that operations on higher frequencies will yield the same reliability as existing frequencies. For example, under heavy rain or icing conditions, when communications are most critical, higher frequencies are generally less reliable.

[16/] Private microwave facilities and services are relatively inexpensive when compared to other services because they provide a sufficient amount of capacity, there is minimal incremental cost to add most services, and there is no cost associated with anything between antennas (mileage cost).

[17/] See, e.g., Petition For Rule Making and Further Petition For Rule Making filed by the Utilities Telecommunications Council in the instant proceeding suggesting, inter alia, that because of current technical and operational rules and standards in common carrier frequency bands proposed as replacement spectrum for displaced 2 GHz licensees, these bands can not provide adequate replacement spectrum.

21. Because certain modifications might need to be made to antenna towers or equipment buildings in order to change frequencies, problems will be encountered with many state and local zoning or environmental regulations. Moreover, it is not clear that the Commission fully understands the potential impact that any change in service from currently licensed facilities would have in a "switch-over" to the new facilities. This switch-over could create problems because of the high degree of system reliability required by electric utility licensees. Obviously, communications facilities must be in place to provide redundancy to assure a smooth transition.

22. Another alternative to 2 GHz facilities suggested by the Commission is satellite circuits. There seems to be almost unanimous agreement among electric utility licensees that satellite facilities are not acceptable because they lack the requisite reliability. As explained previously, the reliable provision of electricity requires real time transmission of critical data. Because of a lag in satellite transmissions, satellites do not provide the real time communications required by electric utilities. Additionally, because of the lack of control by electric utility licensees over satellite communications facilities, reliability cannot be assured.

23. A third alternative to the current 2 GHz allocation suggested by the Commission is fiber optic circuits. Availability and implementation of fiber is a problem in some areas and the stringing of fiber may present right-of-way problems in certain

circumstances. The reliability of fiber is not as great as that of 2 GHz facilities, and there is greater danger of outages for various reasons along the cable. The generally longer time required to restore the fiber and diagnose problems also affects its reliability. In addition, fiber is very expensive to install and maintain, especially for long-haul situations, and over rough terrain. Adding to the cost is the requirement, for reliability purposes, to have redundant rights-of-way and facilities. Because looped configurations are necessary for reliability, already high costs could increase.

V. IF THE COMMISSION IMPLEMENTS ITS PROPOSAL, ELECTRIC UTILITIES SHOULD BE TREATED LIKE STATE AND LOCAL GOVERNMENTS

24. At paragraph 25 of the NPRM, the Commission states it recognizes that "state and local government agencies would face special economic and operational considerations in relocating their 2 GHz fixed microwave operations." The Commission goes on to state that:

> We are particularly sensitive to the need to avoid disruption of police, fire and other public safety communications. To address these concerns, we propose to exempt state and local government 2 GHz fixed microwave facilities from any mandatory transition periods. Rather, these facilities would be allowed to continue to operate at 2 GHz on a co-primary basis indefinitely, at the discretion of

the state and local government licensee.[18/]

25. The Commission's proposal that state and local governments be exempt from the reallocation is a valid first step. However, the Commission should go further. Because of the similarly important function electric utilities serve, they should also be exempt. The Commission seems to have lost sight of the fact that those "police, fire and other public safety communications" it does not want to disrupt rely on the delivery of electricity to perform their services. A disruption of electricity would certainly cause a disruption of "police, fire and other public safety communication."

26. Furthermore, nowhere in the NPRM does the Commission acknowledge that most electric utilities provide certain "lifeline" services in connection with (and as an adjunct to) the "police, fire and other public safety communications." In some instances, local governments rely on the electric utility to provide necessary public safety communications links, especially in the case of emergency preparedness and disaster recovery. The considerations upon which the Commission based its decision to exempt state and local governments are equally valid when applied to electric utilities.

27. In addition, because of the way that electric utility rates are regulated, increased costs to electric utilities for a relocation to alternative spectrum or means of communications could

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[18/] NPRM, ¶25.

be borne by ratepayers. Therefore, electric utilities face the same "special economic and operational considerations in relocating their 2 GHz fixed microwave operations to higher frequencies or alternative media" as do the "police, fire and other pubic safety communications" which the FCC wants to exempt.

28. The Commission must recognize that in granting an exemption to state and local governments, the Commission is granting an exemption to government-owned electric utility systems but denying equal protection of that same exemption to non-government electric utility systems. Under the Commission's proposal, municipal utilities would be exempt from the mandatory migration from existing 2 GHz facilities, while investor-owned electric utilities would be forced to migrate from the 2 GHz band. Municipal electric companies are performing exactly the same services to make electricity available as investor-owned companies and, as previously discussed herein, municipal and investor-owned companies are fully interconnected and work together in getting electricity delivered to customers. In fact, most municipal electric companies purchase their power from investor-owned electric companies and depend on them to supply enough electricity to serve the end use customer. To exempt one type of electric utility and not all, particularly when the utilities are interconnected, violates principles of equal protection and fundamental fairness, and increases the potential for service disruption to all customers.

VI. THE FCC SHOULD DETERMINE WHETHER NEW TECHNOLOGIES AND AND EXISTING 2 GHz FACILITIES CAN CO-EXIST

29. As stated previously, electric utilities require extremely reliable communications. Interference with these communications risks power outages and the safety of life and property. Therefore, electric utilities must have facilities which operate on a primary basis.

30. Interference to electric utility communications would cause reliability problems in the provision of electricity. Electric utilities need real time transmissions and exact data to manage individual systems and the network.[19/] Unlike some communications services where interference could merely cause some static or degradation of service which is inconsequential, or where information could simply be repeated, most interference to electric utility communications is extremely significant. Electric utilities cannot tolerate any interference without possible harmful effects.[20/]

19/ For example, under certain conditions the power system of the western half of the United States will become unstable. To correct the situation, a trip signal is sent over 2 GHz microwave systems from Bonneville Power Administration or Pacific Gas and Electric to Arizona Public Service Company which in turn sends the signal to Public Service of New Mexico, Utah Power and Light, Sierra Pacific, Nevada Power Company and Western Area Power Authority to open certain predetermined power circuit breakers to stabilize the system. This all transpires in one or two seconds. Failure to receive this transfer trip signal has caused the western United States power grid to disconnect and cause black outs to hundreds of thousands of customers.

20/ The time when the most reliable communications are needed by the electric utilities is during severe storms, natural (continued...)

31. Notwithstanding the foregoing requirement, it is not clear that current users must migrate to other frequencies or alternative communication facilities in order to avoid any interference. The issue of whether any of the new telecommunications technologies and existing 2 GHz facilities can operate in the same frequency band without interfering with each other has not been resolved. On the one hand, evidence presented at the Commission's en banc hearing was that, to date, the PCS and private microwave 2 GHz facilities could not co-exist.[21/] On the other hand, several companies have indicated, in various filings in various proceedings, that spread spectrum and other frequency sharing techniques would allow the operation of both private microwave and PCS services without interference to either.

32. Before the Commission reallocates the subject frequency spectrum, studies should be conducted to determine the extent to which existing and proposed services can co-exist. If both services can co-exist, there would be no need to force existing users from current assignments. If it can be determined that current users and newly emerging technology licensees can co-

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[20/](...continued)
disasters and other emergencies when public switched network operations would most likely be compromised. It is specifically at such times when services such as PCS would be most in demand and, at this most critical time, interference to electric company communications is likely to occur. Therefore, any proposal to have electric utility 2 GHz facilities operate on anything other than a primary basis would not provide a feasible alternative.

[21/] Direct testimony of Carl R. Bailey, December 5, 1991, En Banc presentation is Docket No. 90-314.

exists, it would still be necessary to ensure that electric utilities have primary status.

VII. THE COMMISSION'S NPRM EFFECTIVELY ELIMINATES A REALISTIC TRANSITION PERIOD

33. The Commission's action effectively eliminates any realistic transition period and forces current 2 GHz licensees to migrate immediately. Because any type of secondary operations are not acceptable for reliability purposes, alternatives to existing 2 GHz facilities must be sought out now; because there is a question as to whether there is ample frequency spectrum available to accommodate current 2 GHz users, the race may be on to try to find spectrum in the few remaining bands which can accommodate electric utility communications needs and equipment and to move there now, not at the end of some transition period. An electric utility can only speculate at this point as to whether these few remaining bands will become overcrowded and otherwise unsuitable to sustain a viable communications service.

34. Electric utilities have no choice but to choose operational methods that promote the safe and efficient transmission and delivery of electricity and to make those choices now. Therefore, from a planning perspective, it would not be prudent to wait ten or fifteen years to migrate to different frequency spectrum, especially when it is uncertain what spectrum is or will be available. The only prudent action is to explore possible frequency allocations immediately and move to those assignments as quickly as possible before anyone occupies the